

We claim:

1           1. An catheter, comprising:  
2                 a hollow catheter body defining a proximal portion and a distal  
3                 portion;  
4                 at least one internal component within the distal portion of the  
5                 catheter body;  
6                 adhesive material located within the distal portion of the catheter  
7                 body about the at least one internal component; and  
8                 a torque transfer device located within at least a portion of the adhesive  
9                 material and adapted to engage at least a portion of the at least one  
10               internal component and transfer torque to the at least one internal  
11               component.

1           2. A catheter as claimed in claim 1, wherein the catheter body  
2                 comprises a proximal member and a distal member secured to one another.

1           3. A catheter as claimed in claim 2, wherein the proximal member  
2                 and distal member are secured to one another in a butt bond arrangement.

1           4. A catheter as claimed in claim 3, further comprising:  
2                 a butt bond sleeve having a portion located within and bonded  
3                 to the proximal member and a portion located within and bonded to the distal  
4                 member, at least a portion of the adhesive material being located within the  
5                 butt bond sleeve.

1           5. A catheter as claimed in claim 4, wherein the torque transfer  
2                 device is located within the butt bond sleeve.

1           6. A catheter as claimed in claim 4, wherein the torque transfer  
2                 device comprises at least one rib projecting inwardly from the butt bond  
3                 sleeve.

1           7. A catheter as claimed in claim 2, wherein the proximal member  
2 and distal member define respective proximal and distal portions and one of  
3 the proximal member distal portion and the distal member proximal portion  
4 overlaps the other, thereby defining an overlapping region.

1           8. A catheter as claimed in claim 7, wherein the proximal and distal  
2 members are thermally bonded at the overlapping region.

1           9. A catheter as claimed in claim 7, wherein the torque transfer  
2 device is located within the overlapping region.

1           10. A catheter as claimed in claim 1, further comprising:  
2                 a handle connected to the proximal portion of the catheter body.

1           11. A catheter as claimed in claim 1, wherein the at least one  
2 internal component comprises a steering center support having at least one  
3 steering wire connected thereto.

1           12. A catheter as claimed in claim 11, wherein the steering center  
2 support includes a relatively wide proximal portion, a tapered central portion  
3 and a relatively narrow distal portion.

1           13. A catheter as claimed in claim 1, wherein the torque transfer  
2 device comprises a crimp sleeve disposed substantially around at least a  
3 portion of the at least one internal component and in contact with the  
4 adhesive material.

1           14. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a tubular sleeve.

1           15. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a substantially U-shaped sleeve.

1           16. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a substantially C-shaped sleeve.

1           17. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a substantially G-shaped sleeve.

1           18. A catheter as claimed in claim 1, wherein the torque transfer  
2 device comprises a stiffener member being fixedly engaged to the at least  
3 one internal component and in contact with the adhesive material.

1           19. A catheter as claimed in claim 18, wherein the stiffener member  
2 comprises a generally flat member having a curved portion that is engaged to  
3 the at least one internal component and a distally projecting arm portion that  
4 projects into the adhesive material.

1           20. A catheter as claimed in claim 1, wherein the torque transfer  
2 device comprises a laterally extending portion of the at least one internal  
3 component, the laterally extending portion being disposed within the adhesive  
4 material.

1           21. A catheter as claimed in claim 20, wherein the at least one  
2 internal component comprises a steering center support having at least one  
3 steering wire connected thereto.

1           22. A catheter as claimed in claim 1, wherein the torque transfer  
2 comprises a sleeve having at least one inwardly extending rib member  
3 located in the distal portion of the catheter body.

1           23. A steering mechanism for use with a catheter, comprising:  
2                 a steering center support defining a distal end; and  
3                 at least one steering wire connected to the center support a  
4                 sufficient distance from the distal end of the center support to provide a  
5                 straight distal end when the steering wire is activated to bend the center  
6                 support.

1           24. A catheter as claimed in claim 23, wherein the center support  
2                 includes a relatively wide proximal portion, a tapered central portion and a  
3                 relatively narrow distal portion, the steering wire being engaged to the  
4                 relatively narrow distal portion.

1           25. A catheter as claimed in claim 23, wherein the steering wire is  
2                 connected to the center support at a point located approximately one inch  
3                 from the distal end of the center support.

1           26. A catheter as claimed in claim 23, wherein the center support  
2                 includes a relatively wide proximal portion and a tapered distal portion, the  
3                 steering wire being connected to the relatively wide proximal portion.

1           27. An apparatus for creating a lesion in body tissue, comprising:  
2                 a catheter body having a distal assembly including a steering  
3                 mechanism adapted to cause the distal assembly to contact body tissue  
4                 along the length of the distal assembly; and  
5                 at least two electrodes supported by the distal assembly and  
6                 capable of creating generally elliptical lesions at least 2 cm long and 7 mm  
7                 deep which are substantially continuous and uniform in depth when a source  
8                 of radiofrequency energy simultaneously conveys radiofrequency energy to  
9                 the at least two electrodes.

1           28. An apparatus as claimed in claim 27, wherein the steering  
2 mechanism is adapted to cause the distal assembly carrying electrodes to  
3 contact body tissue within the crevasse between the inferior vena cava and  
4 tricuspid annulus.

1           29. An apparatus as claimed in claim 27, wherein the steering  
2 mechanism is adapted to cause the distal assembly carrying electrodes to  
3 exert increased force against body tissue.

1           30. A catheter, comprising:  
2                 a hollow catheter body having a side wall and an aperture  
3 extending through a predetermined portion of the side wall;  
4                 at least one internal component located within the catheter  
5 body; and  
6                 adhesive material located within the hollow catheter body such  
7 that at least a portion of the adhesive material is in the vicinity of the side wall  
8 aperture, the adhesive material securing the hollow catheter body to the at  
9 least one internal component.

1           31. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a guide coil.

1           32. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a steering center support.

1           33. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a sleeve covering at least a portion of the  
3 steering center support.

1           34. A catheter as claimed in claim 30, wherein the adhesive material  
2 extends around the periphery of the internal component.

1           35. A catheter as claimed in claim 30, wherein the catheter body  
2 defines a proximal end and a distal end and the side wall aperture is located  
3 substantially adjacent to the proximal end.

1           36. A catheter as claimed in claim 30, wherein the catheter body  
2 comprises a distal member and a proximal member secured to the distal  
3 member and the side wall aperture is located in the proximal member.

1           37. A catheter as claimed in claim 36, wherein the distal member  
2 includes at least one energy transmission element.

1           38. A catheter as claimed in claim 37, wherein the at least one  
2 energy transmission element comprises a tip energy transmission element,  
3 and the at least one internal component is connected to the tip energy  
4 transmission element.

1           39. A catheter as claimed in claim 30, further comprising:  
2                 a torque transfer device located within at least a portion of the  
3 adhesive material and adapted to engage at least a portion of the at least one  
4 internal component and transfer torque to the at least one internal  
5 component.

1           40. A catheter, comprising:  
2                 a hollow catheter body proximal member defining a distal  
3 region;  
4                 a hollow catheter body distal member defining a proximal  
5 region, the distal and proximal members being respectively located such that  
6 one of the distal region of the proximal member and the proximal region of the  
7 distal member overlaps the other, thereby creating an overlapping region;  
8                 a bond at the overlapping region securing the proximal member  
9 to the distal member; and  
10                 at least one internal component located within at least the distal  
11 member.

1           41. A catheter as claimed in claim 40, wherein the bond comprises  
2 a thermal bond.

1           42. A catheter as claimed in claim 40, wherein the proximal member  
2 includes a side wall having an aperture formed therein.

1           43. A catheter as claimed in claim 42, further comprising:  
2                 adhesive material connecting the proximal member to the at  
3 least one internal component, at least a portion of the adhesive material being  
4 in the vicinity of the side wall aperture.

1           44. A catheter as claimed in claim 40, wherein the at least one  
2 internal component comprises a guide coil.

1           45. A catheter as claimed in claim 40, wherein the at least one  
2 internal component comprises a steering center support.

1           46. A catheter as claimed in claim 45, wherein the at least one  
2 internal component comprises a sleeve covering at least a portion of the  
3 steering center support.

1           47. A catheter as claimed in claim 40, wherein the adhesive extends  
2 around the periphery of the internal component.

1           48. A catheter as claimed in claim 40, wherein the distal member  
2 includes at least one energy transmission element.

1           49. A catheter as claimed in claim 48, wherein the at least one  
2 energy transmission element comprises a tip energy transmission element,  
3 and the at least one internal component is connected to the tip energy  
4 transmission element.